U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

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TIN IN OCTOBER 1997

Domestic consumption of primary tin in October was estimated by the U.S. Geological Survey to be slightly above that in September 1997 and 12% higher than that in October 1996.

The *Platt's Metals Week* average composite price for tin in October was $3.77 per pound, slightly higher than in September 1997 and 6% lower than in October 1996.

In recent years, tin consumption in lead-acid batteries has been increasing. In 1991, a research project was started by the Advanced Lead-Acid Battery Consortium to investigate ways to improve battery performance. Their work led to evidence that increased tin content in the lead-calcium-tin alloy used for battery grids was beneficial in improving grid corrosion resistance and other battery properties. Lead-acid batteries have traditionally contained about 0.2% tin in the battery grids, but increasing the tin content to 1.5% improves power capacity, recharge speed, and resistance to higher under-hood temperatures in automobiles. One small segment of the lead-acid battery market known as valve-regulated batteries, which are typically used in telecommunication equipment and wheelchairs, has been converting to a 98% lead - 2% tin alloy for the "top lead" (the straps connecting the grids). Valve-regulated batteries, while commanding only about 10% of the lead-acid battery market, is the fastest growing sector in that market. The United States has generally been in the forefront of these battery conversions to more tin content; Asia generally does not employ lead-calcium-tin alloys for grids; and Europe is just beginning to try the new higher tin alloy (American Metal Market, 1997).

A scrap industry report published some typical domestic price ranges for used tin cans: $95 to $105 per gross ton in the Midwest; $80 to $85 per gross ton in the Mid-Atlantic area; and $50 to $70 per gross ton in the Southeast. Used tin cans have become, over the past 15-20 years, an important part of the scrap supply for both major integrated steel-makers and smaller steel mini-mills (Container Recycling Report, 1997).

The London Metal Exchange (LME) has called on the tin industry to consider including Singapore as a delivery point for the LME tin contract. The LME generally selects delivery points on the grounds of proximity to consumer markets, and Asia has become a major consumer of tin. The LME's tin committee has recommended that, if Singapore becomes an approved location, tin deliveries would begin after January 1999 (Platt's Metals Week, 1997).

Bolivia's Government-owned smelting organization, ENAF, has decided to hold an invited tender for its 1998 tin production from the Vinto tin smelter instead of continuing the current sales agreements with traders Toyota (400 tons monthly), Silex (300 tons monthly), and Henry Bath (300 tons monthly). Bolivia along with Indonesia and Peru is an important supplier of low-lead tin, which has become a desired item for tin mills over the past few years. Premiums for low-lead tin range from $200-$225 per ton for 100 ppm lead to $225-$275 for 50 ppm lead. The Vinto tin smelter has been up for sale to the private sector for over a year, but remains unsold (Ryan's Notes, 1997).

The major Peruvian tin mining/smelting company, Minsur, announced that its new Pisco tin smelter would produce 12,000 tons of tin in 1998, up about 1,000 tons from 1997. Minsur has also been reducing its tolling arrangements whereby tin concentrates from its San Rafael mine have been sent to other countries to be smelted. Such shipments to Bolivia, Malaysia, Russia, and Thailand were reduced or eliminated in 1997 (Ryan's Notes, 1997).

Update

On November 28, 1997, the Platt's Metals Week composite price for tin was $3.87 per pound.

References Cited

American Metal Market, 1997, Tin market sees new applications: American Metal Market, v. 105, no. 194, October 7, p. 16.

Container Recycling Report, 1997, Steel can recycling: Container Recycling Report, v. 8, no. 10, October, p. 3.

Platt's Metals Week, 1997, LME may include Singapore as good delivery point for tin: Platt's Metals Week, v. 68, no. 42, October 20, p. 4.

Ryan's Notes, 1997, ENAF to tender 1998 tin output: Ryan's Notes, v. 3, no. 42, October 20, p. 4.

Prepared by the Metals Section and the Data Collection and Coordination Section, December 23, 1997.

TABLE 1
SALIENT TIN STATISTICS 1/

(Metric tons, unless otherwise noted)

		1997		
	1996	September	October	January-October
Production, secondary e/ 2/	11,000	900	900	9,000
Consumption:				
Primary	36,500	3,140 r/	3,210	31,400
Secondary	8,180	910	902	8,990
Imports for consumption, metal	30,200	2,810	NA	NA
Exports, metal	4,780	477	NA	NA
Stocks at end of period	11,800	5,420 r/	5,140	XX
Prices (average cents per pound): 3/				
Metals Week composite 4/	412.43	372.60	377.39	XX
Metals Week New York dealer	288.10	259.00	261.44	XX
London, standard grade, cash	279.00	249.00	252.00	XX
Kuala Lumpur	275.19	244.30	249.80	XX

e/ Estimated. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices.

2/ Comprises tin recovered from alloys and tinplate. The detinning of tinplate (coated steel) yields only a small part of the total.

3/ From Platt's Metals Week.

4/ The Metals Week composite price is a calculated formula, not a market price, that includes fixed charges, finance charges, and a risk factor. It normally is substantially higher than other tin prices.

TABLE 2
METALS WEEK COMPOSITE PRICE 1/

(Cents per pound)

Period	High	Low	Average
1996 (annual)	436.25	388.49	412.43
1996:			
October	404.38	396.12	400.25
November	409.57	392.40	401.00
December	405.37	388.49	394.76
1997:			
January	404.19	387.89	396.17
February	403.46	390.40	395.64
March	401.81	389.32	395.64
April	393.82	380.00	386.55
May	393.67	378.72	386.59
June	384.93	374.20	377.81
July	375.61	362.36	370.10
August	377.46	362.60	369.01
September	384.65	362.91	372.60
October	400.12	366.51	377.39

1/ The Metals Week composite price is a calculated formula, not a market price, that includes fixed charges, finance charges, and a risk factor. It normally is substantially higher than other tin prices.

Source: Platt's Metals Week.

TABLE 3
TINPLATE PRODUCTION AND SHIPMENTS IN THE UNITED STATES 1/

(Metric tons, unless otherwise noted)

Period	Tinplate waste (waste, strips, cobbles, etc.) (gross weight)	Tinplate (all forms)			
		Gross weight	Tin content	Tin per metric ton of plate (kilograms)	Shipments 2/
1996	177,000	1,550,000	9,450	6.1	2,490,000
1997:					
January	15,900	168,000 r/	853	5.1 r/	204,000
February	13,600	166,000 r/	775	4.7 r/	183,000
March	12,700	172,000 r/	784 r/	4.5 r/	205,000
April	13,800	176,000 r/	776	4.4 r/	210,000
May	13,200	175,000 r/	721	4.1 r/	213,000
June	12,800	165,000 r/	782	4.7 r/	218,000
July	12,900	172,000 r/	777 r/	4.5	204,000
August	12,900	165,000 r/	687	4.2 r/	213,000
September	14,000 r/	175,000 r/	819 r/	4.7 r/	215,000
October	12,700	163,000	834	5.1	NA

r/ Revised. NA Not available.

1/ Data are rounded to three significant digits.

2/ Shipments data from American Iron and Steel Institute monthly publication AIS10.

TABLE 4
U.S. TIN IMPORTS FOR CONSUMPTION AND EXPORTS 1/

(Metric tons)

Country or product	1996	1997		
		August	September	January-September
Imports:				
Concentrates (tin content):				
Canada	--	--	--	13
Japan	--	33	--	37
Total	--	33	--	50
Metal (unwrought tin):				
Bolivia	6,290	704	188	4,340
Brazil	9,460	799	761	6,740
Chile	407	--	--	464
China	2,760	722	244	3,440
Hong Kong	--	39	--	258
India	898	220	182	1,540
Indonesia	7,550	648	660	5,770
Malaysia	965	17	--	1,010
Netherlands	--	200	--	200
Peru	481	380	541	5,030
Russia	435	--	--	480
Thailand	--	--	160	180
Other	922	73	70	636
Total	30,200	3,800	2,810	30,100
Other (gross weight):				
Alloys	11,800	114	225	3,580
Bars and rods	695	165	130	740
Foil, tubes, and pipes	(2/)	(2/)	(2/)	1
Plates, sheets, and strip	641	1	36	156
Waste and scrap	6,740	120	126	1,470
Miscellaneous	1,360	145	147	1,120
Total	21,300	545 r/	664	7,070
Exports (metal)	4,780	410	447	3,590

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5
CONSUMPTION OF TIN IN THE UNITED STATES, BY FINISHED PRODUCT 1/

(Metric tons of contained tin)

Product	1996	1997 2/						
		September			October			January-October total
		Primary	Secondary	Total	Primary	Secondary	Total	
Alloys (miscellaneous) 3/	W	57	--	57	34	--	34	352
Babbitt	851	10	W	10	26	W	26	176
Bar tin and anodes	1,150	8	--	8	8	--	8	W
Bronze and brass	2,760	55	95	150	65	119	184	1,600
Chemicals	7,520	624	W	624	624	W	624	6,400
Collapsible tubes and foil	240	27	W	27	30	--	30	240
Solder	15,600	481	W	481	528	W	528	5,090
Tinning	2,030	73	--	73	70	--	70	1,080
Tinplate 4/	9,350	819 r/	--	819 r/	834	--	834	7,670
Tin powder	573	W	--	W	W	--	W	192
White metal 5/	1,340	W	--	W	W	--	W	W
Other	3,230	83	315	398	86	283	369	3,630
Total reported	44,700	2,240 r/	410	2,650 r/	2,310	402	2,710	26,400
Estimated undistributed consumption 6/	--	900	500	1,400	900	500	1,400	14,000
Total	44,700	3,140 r/	910	4,050 r/	3,210	902	4,110	40,400

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Annual respondent data not prorated for individual end use data.

3/ Includes terne metal.

4/ Includes secondary pig tin and tin acquired in chemicals.

5/ Includes pewter, britannia metal, and jewelers' metal.

6/ Estimated consumption of plants reporting on an annual basis.

TABLE 6
DEFENSE LOGISTICS AGENCY
TIN STOCKPILE DISPOSALS 1/

(Metric tons)

Period	Monthly disposals 2/
1996:	
October	--
November	210
December	200
Year total	6,670
1997:	
January	215
February	200
March	115
April	60
May	200
June	60
July	210
August	220
September	45
October	45
Total	1,370

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ These disposals represent only the daily, spot sales program. They do not include the long-term dealer contract sales program.

Source: Defense Logistics Agency.